THE PLOUGH BOY.

AND JOURNAL OF THE BOARD OF AGRICULTURE.

BY S. SOUTHWICK.

"He that observeth the wind shall not sow and he that regardeth the clouds shall not reap."—BUT—"He that tilleth his land shall have plenty of bread."—*Ecclesiastes.*

Vol. III. *ALBANY: SATURDAY, APRIL 27, 1822.* No. 48.

A REPORT

On the Geological Structure of the County of Saratoga, in the State of New-York; together with remarks on the nature and properties of the various soils and modes of culture, intended to illustrate the Natural History and Domestic Resources of the County.—By Dr. John H. Steel.

TRANSITION FORMATION.

(*Continued.*)

Gray-Wacke.—Wherever this rock is found in this region it rests on the argillaceous slate, and in some places is observed to alternate with it. It forms the summits of some of the insolated elevations throughout the southern parts of the county. It occupies a considerable space along the highlands which run parallel to the Hudson, through the towns of Saratoga and Stillwater, and enters largely into the composition of that celebrated mount called Bemus' Heights. It is observable again along the southern parts of Ballston and Charlton, where it is observed to run into and alternate with *Gray-wacke Slate.* This last differs but little from the former, excepting it is more slaty in its structure. Along the east side of Saratoga Lake they have a considerable declination to the southeast, but in Charlton their position is nearly horizontal.

On the eastern border of Saratoga Lake, at a place called Snake Hill, there is a curious and interesting stratification of these rocks.—The hill projects into the lake some distance, and rises abruptly nearly two hundred feet above the level of the water, presenting a naked and almost perpendicular front; which looks to the west and southwest, where the different strata are as regularly and well defined as though they were painted upon a wall. They rise from the water in regular succession along the southern part of this front, and pursue an elevation of about 20 or 25 deg. to the northwest, in straight and parallel lines, until they arrive towards the northern termination of this promontory. Here they make an abrupt curve, and pass up the mountain in an oblique direction, to its summit, producing a declination exactly in an opposite direction. The curve made by the strata, taking an opposite course, is the segment of a circle, the diameter of which would not exceed 12 or 18 inches. The strata are of different dimensions, varying from half an inch to two feet in thickness, and consist of alternate layers of argillaceous slate, siliceous sand stone and gray-wacke slate. The siliceous sand stone contains some few impressions of shells, principally by-valves and it effervesces very slightly with acids.

Siliceous and Calcareous Sand Stone.—These rocks occur all along the eastern and southern termination of the primitive region. They appear in the banks of the Hudson, a little above Glen's Falls, and they are very conspicuous along the south part of the town of Greenfield, until they come in contact with the Kayadarosseras mountains; when they pursue the course of that primitive tract to its southern termination in the town of Galway. They then take a western course into the county of Montgomery.

In Greenfield and Corinth, this formation occupies a narrow space along the foot of the Kayadarosseras mountains, to Jessup's Landing; where they form the bed and banks of the river to the falls at Hadley, a mile below. A little above the falls, the layers of these rocks are separated by a thin stratum of pudding stone, consisting of small rounded pebbles, held together by a cement composed of sand and lime.

Some years ago, I mistook these rocks for a primitive formation, and that distinguished geologist, Amos Eaton, has been led into the same error, probably from my representation; but I am now convinced, from a more minute investigation, that they belong decidedly to the tranition class, and only occupy a narrow space at the bottom of the valley, between the mountains.

The same formation occurs again on the west side of the Kayadarosseras, along the foot of the Sacandaga mountains; and it is of this stone that the piers of the elegant state bridge across the Sacandaga river near the Fish House, are constructed; indeed some of the rocks at this place approach very near to compact limestone, and contain specimens of organic remains.

Horn Stone is found in great abundance imbedded in the calcareous sand stone, and *calcareous spar*, beautifully crystallized, and possessing a variety of colours, occurs in both.—Some of these rocks contain in their fissures and cavities beautiful and very perfect six-sided crystals of quartz. These occur in great abundance among the calcareous sand stones in the vicinity of the mineral springs at Saratoga, and are presented to the curious under the appellation of *diamonds.* Some small crystals of these stones have been found in the earth about these rocks having regular sides with both terminations entire, and possessing a lustre but little inferior to the diamond itself.

The siliceous sand stone, in some places, seems to pass into a kind of *Amygdaloidal rock*, which effervesces very slightly with acids; its cavities, which are very numerous, are lined with *Chalcedony.* This sometimes occupies the whole space; but more frequently forms *geodes*, the insides of which are usually studded with small brilliant crystals of quartz. The walls of these geodes frequently pass into *Adate;* exhibiting its zigzag parallel lines very distinctly. It is sometimes nearly white, but more frequently of a smoaky white colour. It occurs in various places, but its best locality is eighty or an hundred rods west from the Congress Spring.

Most of the calcareous and siliceous sand stone of this region are easily cut, and they stand the effects of heat well. In Galway they are used for jambs and backs to chimneys; and in Greenfield they are extensively quarried for the construction of the locks on the northern canal.

SECONDARY FORMATION.

In this county, the secondary formation consists altogether of *Compact Lime Stone.* It

passes into the county at Glen's Falls, and pursuing a southwest direction through the towns of Moreau, Wilton, Saratoga Springs, Milton and Galway, passes into the county of Montgomery. It comprises a space from one to two miles in width. Its connexion with the transition rock is very conspicuous at a little distance below Glen's Falls, where it is first observed to alternate with gray-wacke slate and gray wacke, which finally rest on the argillaceous slate, not far above Baker's Fall's in the town of Moreau.

The whole of this lime stone is of a dark blue colour; and some of its strata are extremely compact and uniform in their structure, while others appear to be composed altog ther of organick remains, the forms of which are perfect and entire. When properly burned, this rock forms a very pure lime, giving out when first heated, a strong sulphurous odour.

Small specimens of *Flaute of Lime* have been picked up among the fragments of this lime stone where it had been quarried for the purpose of making lime, in the vicinity of Saratoga Springs. Its geological connexion with the rock has not been observed, nor has it, I believe, been discovered in any other places.

Among the organick remains found in this formation, the following have been recognized, viz: Celleporites, Pectenites, Orthoceratites, Amonites, Cardites, Gryphites, Corallintes, Terebratulites and Ostryatites.

SOIL, PRODUCE, AND *MODES OF CULTURE.*

The difficulty attending the classification of soils, with any degree of accuracy, has been acknowledged by all systematic writers on agriculture. The soils which occur in this country, as will readily be perceived from the foregoing view of its geological structure, are extremely diversified in their composition, texture and other properties; the various articles which enter into their composition, are in most places differently combined, even in the same farm; to examine and relate, therefore, all the minute deviations from a general standard, would be an endles task, and one that could not be of any essential utility to agriculture. The general character of each soil should be distinctly and minutely attended to.

It is believed, that the soils of this county may all be sufficiently described and understood under the general distinctions made by the farmers themselves, with such reference to locality as the particular situation of each may point out, viz, *Siliceous*, [sandy] *Aluminous*, [clayey] *Loamy and Vegetable* or *Vegetable Mould.** For the conveniency of description, I have adopted the following arrangement, founded solely upon the foregoing distinctions:

Sandy; Sandy Alluvion; Clayey Soil or Upland Clay; Clayey Alluvion; Upland Loam; Vegetable Mould or Peaty Soil.

I commence with the primitive region.—The *Soil* of this tract belongs to that general division of earthy substances, called *Geest*; a term given to those earths which are the product of the decomposition or dissolution of the rock-formation, in their immediate vicinity, to distinguish them from *Alluvion*, which is always of foreign origin. If we except the southern part of the town of Edinburgh, there is but very little if any alluvion in the whole of this district, and even this appears to be the product of the neighbouring mountains, and does not differ materially in its composition from the geest.

The soil, therefore, of the whole of this region belongs generally to the *Siliceous Class*; being composed of small particles of quartz and mica, distinguishable with the naked eye; and when placed beneath the magnifying lens of a microscope, the whole constituents of the primitive rocks are discernible. It has a coarse rough feel in the fingers, and its colour is of a dark brown or yellow, and this is varied in proportion to the quantity of vegetable and animal matter which enters into its composition.

Fair specimens of this soil, taken from two to four inches beneath the surface,* from the towns of Providence, Edinburgh, Concord, Corinth, Greenfield and several places along the Palmertown Mountains, yielded.

Water of absorption,	5
Animal an vegetable matter,	8
Soluble salts,	0.5
Siliceous sand,	77
Carbonate of lime,	0.5
Alumine,	5.5
Oxide of iron,	2
	98.5
Loss	1.5

This may be considered as a fair estimae of the properties contained in the soil of this region. There is sometimes a difference in the quantity of vegetable and animal matter found in different specimens of the soil; and this constitutes the only variation from the general estimate here made, worthy of any attention.

The settlement of that part of the county which is here included in the primitive region, commenced from forty to forty-five years ago; and a large proportion of it is now cleared of its forests, and under cultivation. That part which still remains uncultivated, includes principally the precipitous parts of the mountains and their more elevated summits. These are covered with a large growth of hemlock. [*pinus canadensis*] beach, [*fagus ferruginea,*] hard maple, [*acer saccharinum*] soft maple, [*acer rubrum,*] and black birch [*betula lenta.*] These constitute the principal timber of the whole region. White pine. [*pinus strobus,*] in some places grows to a large size; and towards the southern boundary of this tract, oak, [*quercus*] chesnut, [*cestenea vesca,*] hickory, [*juglans,*] occur; but they form but a small portion of the native timber of this part of the county.

The second growth of timber on this tract, is black birch, wild cherry, [*prunus virginiana,*] white oak, [*quercas alba,*] and elm, [*vulmus americana*]; and it is a curious fact, and one that appears to be well attested, that on clearing or destroying a growth of hemlock, it is sure to be succeeded by hard maple and beach.

MODE OF CULTURE.

The trees are first chopped down and burnt; the earth is then dragged over with a heavy harrow, and the seed for the future crop sown—this is generally winter rye. Wheat, when it succeeds, usually yields a good crop, but it is so uncertain in its success, that the farmer prefers rye, which is seldom known to fail, and yields thirty or forty bushels to the acre. Winter wheat is considered a very precarious crop throughout the whole of this district: the difficulty arises from its liability to be killed out during the winter. Whether this arises from the nature of the soil, or from any peculiarity in the climate, seems not to be well determined. Spring wheat is thought to succeed best, but it is usually sown on sward land.

When the land is sufficiently subdued to admit the plough, it is planted with Indian corn, and if this succeeds well it is continued for several successive years; usually until the crop will no longer pay the expense of tilling, when it is sown with rye, and during the winter, *hay-chaff*, which consists of the seeds and husks of a great variety of grasses, most of which are unprofitable and highly improper to cultivate, is thrown over the snow, with a view of seeding the field to grass—it is then mowed or pastured until its stinted produce will no longer sustain its degenerate and impoverished tenants, when it is turned over with a plough; and with a view to subdue and destroy the sod, it is dragged with a heavy harrow and cross ploughed. This process of ploughing and harrowing is repeated until the ground is rendered sufficiently "mellow," as it is termed, for the reception of the seed, which is commonly rye or spring wheat, which is succeeded by Indian corn, potatoes, oats, and sometimes flax. Flax, however, like winter wheat, is considered a very precarious crop, and is not much cultivated. It is thought to succeed best after potatoes.—

* Sir Humphrey Davy, in his treatise on the elements of agricultural chemistry, has adopted this arrangement under the following precision of terms: Sandy soil to contain at least 7-8 of sand and that which effervesces with acids to be termed Calcareous, to distinguish it from Siliceous. Clayey soil to consist of 1-6 of impalpable earthy matter, which does not effervesce materially with acids. Loamy soils to contain 1-3 of impalpable earthy matter, copiously effervescing with acids. Vegetable Mould to contain 1-2 vegetable matter.

* All the specimens of soils, which were the subjects of examination, were taken at this depth, that they might be disconnected with these incidental accumulations that are constantly taking place on the surface.

These crops are combined or alternated, to suit the wants or the fancy of the cultivator, for a succession of years, until the soil, worn out and exhausted by a course of tillage from which it receives no kind of sustenance, if we except the scanty pittance of the barn-yard, it again refuses to yield to the hand of labour its wonted product, when it is again seeded with chaff, and the same unprofitable and precarious routine of cropping persevered in.

It is proper to state that *this mode* of cutlure does not apply to all the farmers in this district. Many are beginning to adopt the method of seeding more frequently with pure seed, and of alternating their crops. The success of this system will be shown hereafter.

All the most useful grasses succeed extremely well on this soil. and when they come to be properly cultivated, there can be no doubt that it will furnish some of the best grazing land in the county, if not in the state.

The following estimate of the average produce of this district, as it is generally cultivated, will be found rather to exceed than fall short of the fact :—

Indian Corn,	20	bush. per acre.
Winter Wheat when it succeeds,	15	do.
Spring Wheat,	10	do.
Rye,	20	do.
Do. on new land,	30 or 40	do.
Ooats,	25	do.
Potatoes,	200	do.
Meadow from 1 to 2 tons per acre.		
Pasture less.		

Several farmers have suggested, that a dressing of lime to this soil, would, besides greatly adding to its fertility, generally enable it to produce winter wheat with more certainty.—The experiment is surely worth trying. The refuse of old lime-kilns will answer every purpose. For the reception of this manure the sod should be turned over in the fall, and after being well rolled the lime should be equally spread over the surface of the furrows, in the proportion of four or five loads to the acre, and combined with the earth by means of a light plough or drag, without disturbing the sod—it is then prepared for a winter crop, or for spring tillage. This would certainly supply an article to the soil which it is quite deficient in, and would, very probably, render it more susceptible of the good effects to be expected from the adoption of a regular and systematic mode of culture.

(TO BE CONTINUED.)

Weekly Summary.

On the 30th ult. at Lancaster, Pa. a Mr. Lechler, being jealous of his neighbour, a Mr. Haag, first strangled his own wife, and hung her up in the garret—then went to Haag's house, with a brace of loaded pistols, intending to murder Haag; but in the fracas, discharged both pistols at once, the ball of one grazed the forhead of Haag, whilst that of the other entered the breast of Mrs. Haag, and killed her instantly. Lechler has escaped.

On the 28th of February last, the boiler of the Steam-boat Maysville, Ohio, on her way to Maysville, bursted, by which seven men were badly scalded, of whom *Nathaniel Eddington* lost his life; the others were in a fair way to recover. The accident happened about five miles below the village of Madison. At the same time a human body was seen floating near the boat, which proved to be that of a female about 20 or 25 years of age, who had evidently been murdered.

The ancient town of Boston has become a city, throwing off its democratic government for that of a mayoralty, &c.

At Manlius, N. Y. March 28th, Francis Benjamin, many years a resident of that village, committed suicide.

At Pompey, N. Y. March 27th, Mrs. Blowers drowned herself in a well. She was one of the subjects of a religious revival or awakening, so called—fancied herself doomed to hell—and under this gloomy impression committed the fatal deed!

Capt. Josiah H. Hamilton, and George Munn, a promising young man, were found dead in a Sail-boat, which had drifted on shore between Bridgeport and New-Haven, Conn. on the 6th inst. They had left Bridgeport the day preceding; and sunk, it is supposed, under cold and fatigue, the boat being waterlogged.

Congress have determined to adjourn on the eighth of May.

Resources of the West.—We hear of a rich mine of Lead Ore, in the vicinity of Cahawba valley; and a bed of of valuable Gypsum, on the banks of the Niagara, a few miles below the Falls.

The United States imported from Liverpool, in 1821, 29,996 packages of earthenware.

In the neighbourhood of Liverpool, during the whole of 1821, there were but 14 days of clear, cloudless sky.

The Kentuckians felicitate themselves on a greater and better crop of tobacco the last year, than they ever had before; computed at 30,000 hogsheads.

The brig Traveller has sailed from New-Bedford on a whaling voyage—the *cook* the only *white man* on board!

The Lover's Leap.—A few days since, a young woman, near the Albion mills, district of Gore, threw herself from an awful precipice, and survived but a few hours. She lived in the family of *John Secord*, Esq. She loved a young man, who slighted her.

In Livingston, Me. March 23d, the dwelling house of Mr. David Richardson, with all it contained, was destroyed by fire—Mr. Richardson, and one of his sons, 6 years old, perished in the flames, Mr. Jacob S. Libbey, a promising young man, was killed by the falling of the chimnies.

In Kentucky, the goal limits include the full extent of each county.

The late paper emission of Kentucky has depreciated 70 per cent.

On the 12th inst. the corner stone of the first Presbyterian Church of Brooklyn, L. I. was laid in the presence of numerous spectators.

The dwelling-house of George Sheffield, Esq. of Lyme, Ohio, was consumed by fire, March 23d, and his son aged 13, and daughter 6, perished in the flames.

The Ariosto, which arrived at New-York, from Africa, on the 11th, inst. brings advices, that she left 250 slave vessels on that coast.

Several attempts have been recently made to burn the village of Canandaigua; a general meeting has been held to devise means of protection. The wretch or wretches, concerned in this diabolical work, exhibit no small share of perseverance.

A number of houses were unroofed, chimnies blown down, and other damage done, but no lives lost, by a tornado at the city of Washington on the 5th inst.

The National Intelligencer informs, that the departure of the Russian Minister, Mr. Poletica, from the U. S. has no connection with our recognition of the Independence of South America.

Sergeant Lanham, convicted at Washington city, of having murdered Sergeant Kelby, in a fit of jealousy, was to have been executed on the 4th inst. but received a respite of six months, and will probably be reprieved.

We have, says the Charleston City Gazette, remarked in a late London paper, the case of a poor woman, who was refused a settlement in a Parish, upon the ground that she had been *married by a Roman Catholic Clergyman.*—This was declared to be the law of the land. Her husband had been forty years an inhabitant of the Parish.

For a long time past, there has been a schism among the Roman Catholics at Philadephia. The Rev. Mr. Hogan, of St. Mary's Chrch, was excommunicated by the Bishop. A part of Mr. Hogan's hearers adhered to him. The dispute has at length terminated in a conflict between the parties for possession of the church, in which there were many broken limbs, bruised heads, black eyes, and deep gashes. Mr. Hogan's party prevailed. The conflict took place on the 9th inst. The Civil Authority were for a while put at defiance. But order was finally restored. The streets, the grave yard and tombs, says one account, were marked with blood.

On the 13th ult. the new Steam-Boat, *Superior*, was launched at Buffalo Creek, on Lake Erie. She is a fine built vessel The Lake was clear of ice,

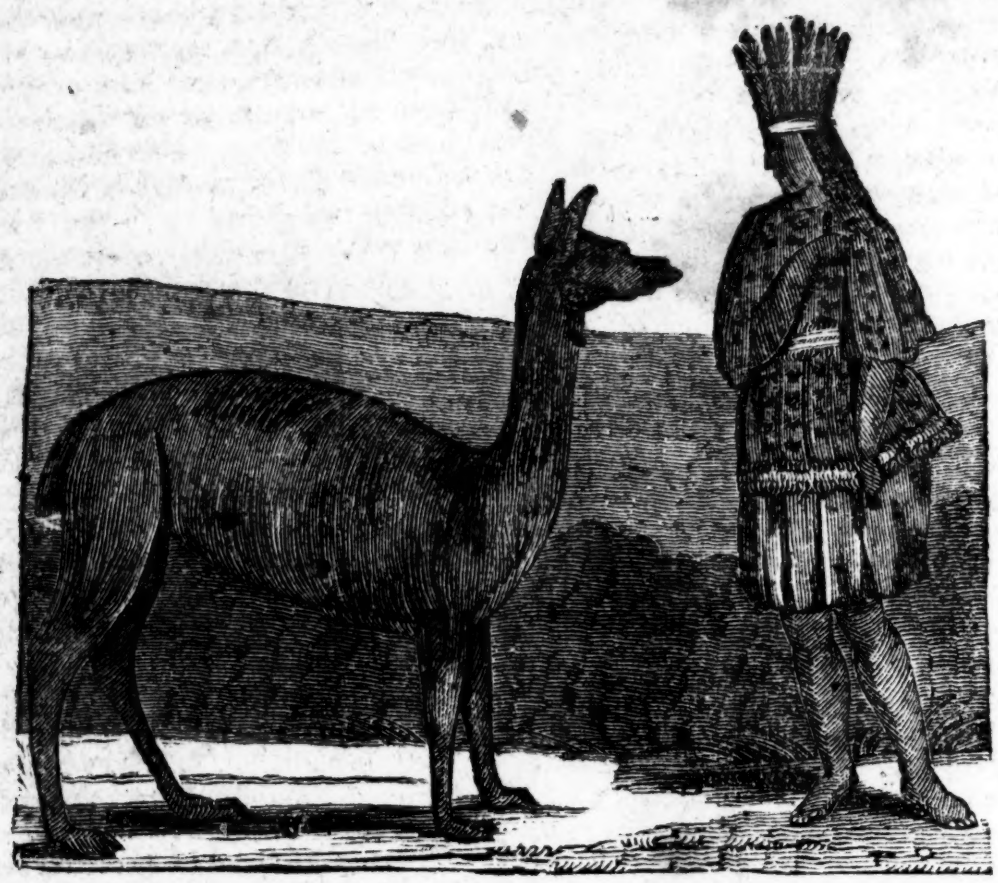
Five hundred labourers are wanted to work on the canal, through the Cayuga marshes.

THE SHEEP OF PERU

Are exceedingly valuable, and ought to be introduced into the U. States of North America.

(Continued from page 372, No. 47.)

THE HUANACO.



The Huanaco is rather smaller than the Alpaca, of course less than the Llama—its general stature is about three and a half feet high. That it can be domesticated when taken as a suckling, has been proved in several instances; and that it will intermix with the Alpaca, the Llama, and the common European sheep, has likewise been proved by various experiments.

That the Huanaco as well as the Vicuna have generally remained in a wild state, has arisen from the inattention of the Spanish government, and from the Indians having a superabundance of the Alpaca and Llama for all domestic purposes.

At the time of the expulsion of the Jesuits from South America, they had upwards of a thousand of Huanacos and Vicunas in a tame state in their inclosures—they had crossed the breed with the other species of sheep, and saw the importance of the scheme both for the country, as well as Europe, but after the departure of the Jesuits, the plan of domesticating the two wild species was abandoned, and it has not since been renewed.

It has been found that the Huanaco, though of a deep bay colour, crossing with a white female Llama, produces an offspring nearly of the hue of the mother—and in the second generation, besides being perfectly white, the wool has been considerably improved in fineness.

The Huanaco is the swiftest animal of Peru, and is more courageous than either of the other species of sheep; and although, as regards his wool, he is of less value than the others, yet it is probable that great advantages may be derived by erossing with this breed, and therefore it is desirable to introduce this species as well as the others, into the United States.

(*To be continued.*)

From the Georgia Journal.

Rotation of Crops, addressed to the Putnay Agricultural Society, by Captain David P. Hillhouse, an honorary member, residing in Wilkes.

Next to tho proper timing of work, no branch of the practice of husbandry is more material, than a judicious rotation of crops.—There must be a capacity in the soil, either natural or acquired, to ensure success to the most ingenious theories on agricultural productions. This advantage possessed, there is much skill as well as sagacity required, so to alternate crops as to draw the most profit from, and impose the least afflictive torture on the ground cultivated. In order to a proper understanding of this subject, it must be first learned, and afterwards remembered, what kind of crops are heavy in their drafts from the earth for necessary supplies, and what are most indulgent to the soil on which they are grown—either drawing little from the earth, or liberally dividing their produce with the soil from which their nourishment was divided. All plants do not draw from the earth the same quantity of nourishment—for instance, rye will grow well on soils that will barely produce wheat. Nor do all plants require the same degree of cultivation—the roots of some penetrate the hard earth, which others have to rest upon. A soil is sometimes robbed of all its food for a plant that has been, for many successive years, continued to be cultivated upon it—when there may be still in that same soil, abundant nourishment for other plants, requiring a different food from that taken up by the first crop.

It will be a good general rule to consider all culmifferous crops as severe, and all leguminous crops as mild, in their operations on the soil. The first kind of crop, wheat, rye, barley, corn, &c. is always cultivated for seed, which ripen together throughout the whole crop, and require a simultaneous and abundant appropriation from the earth and atmosphere to mature them. After this grand, universal effort of elements, the vigor of the plant ceases, it decays, and the seed are its hard-laboured progeny—the chief object of its cultivation. The exhalation of atmospheric and earthly vegetable food, is exhausting to the soil, as well as to the plant—for in such case, no recreating or reinvigorating juices are bestowed on the earth in reciprocation. Culmifferous crops, however, are not impoverishers of soil, if taken off in a green state, before the united contributions of earth and atmosphere mature their seed. But, in this event, the purpose of cultivating such crops is not answered; the matured seed of wheat, barly, flax, &c, are the objects sought for in their cultivation. If cut green, the soil and the grass may be preserved, but the fruit is lost. Whatever crops will produce accretion of soil, must of consequence be valuable for cultivation. Leguminous crops, (peas, beans, potatoes, clover, &c.) having generally many broad and expansive leaves, and enjoying a reciprocal intercourse with the earth, by the action and reaction of vegetable juices, do not operate severely on the soil that bears them. Their fruits are matured, not altogether, but in parts and numbers, as an accurate observer will remark, just as the atmosphere that prevails may contribute its supplies. From the atmosphere, for the most part, do the maturing supplies of food reach a leguminous plant; what the earth contributes to the plant in a growing state, is returned again in its maturing condition. We observe that, in maturing its seed, a leguminous crop is slowly progressive—the earth continually furnishing food, or juices of fruit, which the atmosphere matures as fast as its prevailing temperament will admit. Hence we see green and ripe fruit on the same vine of peas, beans, pumpkins, clover, &c. Culmifferous plants, in their advanced stage, having tall, slender stems, and few leaves, afford no shelter to dew that falls, and

this is consequently evaporated by the succeeding sun. But leguminous crops afford shade and shelter too, and dew falling upon or under them, is secured from evaporation, and the earth absorbs it. Bulbous and tap-rooted plants are all of the leguminous tribe, and are more efficient in dividing and pulverizing soil, than fibrous-rooted plants. Culmifferous crops are essential in the cultivation of our farms. They are convenient also, and much of the soil of every farm is suitable to their growth. It is, therefore, necessary that such an alternity be established in the cultivation of culmifferous and leguminous plants, as will least impoverish the toil. A frequent repetition of the same crop, even of the leguminous tribe, should be avoided, for the kind will certainly degenerate if repeatedly put on the same ground. This remark is supposed by a reputed author, to be infallibly applicable to red clover.

Besides the benefit of increased production, under the system of rotating crops, there is another advantage derived, that may not, commonly, have been considered. Culmifferous and leguminous crops are often subject to imperfection of seed, or ravages by insect, else deterioration by reason of constitutional infirmity. These evils are increased by repeating the same articles on the same piece of ground—for it is before stated that seed and fruit are apt to degenerate under such practice—and by repeated crops, subject to depredation by insects, these are encouraged to deposit their eggs and made their abiding place convenient to the subject of their ravages.

A rotation of crops is completed by interchanging the several articles of produce on the same field, for a term of years. Thus, in a rotation of three crops, (cotton, corn and wheat,) on three fields, A, B, & C, the first year A produces cotton, B produces corn, and C grows wheat—the second year, A produces corn, B, wheat, and C, cotton—the third, A, produces wheat, B, cotton, and C, corn—Then the rotation is completed, because each field in its turn, has grown cotton, corn and wheat. The best plans for rotation cannot be established, but from the experience of many years. Observations and comparison will enable farmers to determine, in a few years, what courses are most productive;—but a longer term will be required to ascertain what courses are least impoverishing.

"Those crops, (says an author,) which require a light soil, should make no part of a course on a stiff one, and *vice versa*." My idea of the object of alternating crops, is, to bring the several prevailing crops that best grow on different soils, into occasional cultvation on the same soil, with advantage to the crop, and without injury to the soil. In our country, few persons have farms embracing (to any considerable extent) more than one kind of soil; and if the above quoted author's rule must prevail, a farmer's crops must be confined to the favorites of his soil, whether they be of staple articles or not. Some good farmers object to introducing cotton into a round of crops, giving a rule of the same author, "All plants that bear an oily seed, rob the soil of much of its vegetable food." Admitting this position to be altogether correct, cotton is too valuable an article to be rejected from cultivation; and, if taken into cultivation, I see no reason why it should be proscribed from a privilege of alternity with other crops less immediately productive.—But if the position is indeed correct, cotton is the most impoverishing crop raised in the Southern States. If the rule be correct, I do not agree that the rule is at all applicable to the position. All agree that flax is an impoverisher, but I insist cotton to be an ameliorater of the soil. I am certain there is no crop cultivated in the Southern States so good for fallow, (or the preparation of the ground for an ensuing crop,) as cotton. Its roots penetrate deep, and break the tenacity of a close substratum—Its branches and leaves shelter the soil, and save the light particles of fertility from exhalation by the sun—and its profit to the planter must of propriety and necessity be weighed in its consideration. I am, therefore, decided that cotton should be introduced into a system of rotation.

In order that various opinions and practices may be adopted, with the view of establishing a correct course on experimental results, I submit a number of rotations, calculated for different circumstances of soil and market, as for various periods of time, and extent of fields. The agricultural community, in the Southern states, are yet prejudiced against any course of crops that rejects a profitable, though exhausting article, for the purpose of introducing one that is barely convenient, but ameliorating in its character, or substituting a year's rest, in lieu of an impoverishing crop. I must remark that if rest is not frequently granted to soils that carry exhausting crops, *manure* in large supplies must be substituted. This, every planter will soon have occasion to observe. Even with a rest of every fourth year, manure ought to be applied to the succeeding corn or wheat crop; but the application need not be so abundant as if no rest was allowed. In degree as the year of rest is protracted, will be the necessity of an increased supply of manure.

The first course I propose is a three-shift, (allowing as many fields as years to fill a course,) in the order of 1. corn, 2. wheat, 3. cotton. The fourth year commences the course again with corn. I advise manure to be applied every year on the wheat field, broad-cast. I put cotton after wheat, because if the stubble be ploughed in early after the wheat is taken off, it forms a good pabulum for cotton, and cotton is assuredly the best preceding crop for corn. No rest is allowed in this course; therefore, manure must keep the soil in heart during the rotation.—Under any proposed course of crops, pasturing the fields or any of them is considered as determined to the object of changing or rotating crops. The second course is a four years rotation, 1. corn, 2. wheat, 3. cotton, 4. rest. In this course, I admit a year's rest, that is, a year free from tillage, or treading by stock under any circumstances, and propose the application of manure on the corn field.—This manure to corn succeeded a year of rest, will make the advantage to the soil more than equal to two years rest; and the three crops will participate freely in its advantages. Cotton stalks are permitted to remain on the field in their natural or upright position, until the ground is about to be broken up for corn 12 months afterwards. The third course will bring a recurrence of crops every fourth year, substituting peas or rye for the year of rest in the second course.

Here I propose peas or rye, separately or mixed, to be sown broad-cast, and ploughed into the earth, either in a succulent or matured state for the purpose of fertilization.—Without a year's entire rest, or the labour and expense of manuring in hill, drill, or broadcast, this plan will answer the purpose, besides affording seed enough of peas and rye to sow another field of the same size. This course has something economical, as well as profitable, to recommend it. In these courses, I have supposed a whole field for wheat. This perhaps may not be desirable. The field named for wheat, may be put wholly or in part in wheat or rye, barley or oats.

The fourth course proposes a round of five years, over five fields, 1. cotton, 2. corn, 3. wheat, 4. clover, 5. buckwheat, else peas, vetch, lentil, or some such article.

In this shift, two great ameliorations are introduced, i. e. red clover and buckwheat.—The clover is sown, say with wheat after the corn is off in 1821, in the spring, 1822, the wheat is cut, and the clover grows through the stubble. In July, 1823, the clover is ploughed in, and buckwheat immediately sown down, alone, or mixed with peas, vetch, or lentils—reap this in October, and plough in the stubble preparatory for cotton in 1824.—In this is a crop every year, yet about two years rest; from June, 1822, to July, 1824, the ground is not made bare, nor is the soil impoverished. The seed of clover is gathered the year succeeding the wheat crop. For a fifth rotation, I name a six-shift, as 1. corn, 2. cotton, 3. wheat, 4. clover, 5. clover again, 6. buckwheat. This course is still better calculated than the preceding, for improving a plantation or farm. It requires wheat to be sown on cotton ground, (say in December) and retains clover two whole years, and also from June to December of the wheat year, and from January to July, of the buckwheat year. Clover, cut green and cured, is more valuable food for horses and cattle, than a full quantity of corn blades, and half a portion of corn—and buckwheat far better than common

wheat, for all kinds of stock. Thus, while the soil is resting and improving, profit arises from its production. The sixth course I will mention, is 1. cotton, 2. cotton, 3. corn, 4. wheat, 5. clover, 6. buckwheat or peas.—Here is cotton two years successively on one field, (in my judgement an advisable course,) and a new field taken from buckwheat every year. Clover is only two years a proprietor, and buckwheat prepares for cotton. Clover has been introduced to the attention of planters and farmers, from a personal knowledge of its adaption to our soil and climate, and a fearful belief of the necessity to which agriculturists will be reduced, of raising some vegetable lay to preserve their lands in heart.—Deep ploughing and enclosure are kept in my view, as necessary auxiliaries to any project for restoring fertility to soil.

(Signed) DAVID P. HILLHOUSE.

Wilkes County, Ga. Aug. 13, 1821.

P. S. Appendant to what I communicated to the Society last year on the "*rot in cotton*," I will observe, that that disease makes its appearance this year, under so many different circumstances of soil, season, climate and culture, and promising extent or diminution of ravages, as entirely to baffle any effort I have been able to make, to trace its origin, or limit its progress. We may probably hope for a mitigation of the evils of this scourge, in the powerful operation of the all-powerful operator—Time.

THE PLOUGH BOY.

ALBANY: SATURDAY, APRIL 27, 1822.

THE MINERVA.

In our last we copied from the *Albany Register* the notice of a new paper, entitled THE MINERVA. But that notice omitted to mention that the paper is published every Saturday, by G. L. Birch, No. 44, Maiden Lane, New-York, and at the office of the Long Island Patriot, Brooklyn, at FOUR DOLLARS per annum.

We have not received the second number of THE MINERVA, in which we had promised ourselves a rich repast. The following article is extracted from the first number.

SCHOOL OF ARTS. An Institution has been lately established at Edinburgh for the purpose of delivering lectures on mechanical philosophy to the young artisans of that city, which promises the most beneficial results.—Several of the Professors in the University have volunteered their services *gratis*, and a valuable library has been attached to the establishment, through the liberal donations of the inhabitants. At the opening of the session of the Institution, which was attended by a numerous concourse of respectable gentlemen, an address was delivered by Mr. Horner, the Secretary, from which we glean the following interesting facts respecting those celebrated Engineers, Watt and Rennie, and the no less celebrated Astronomer James Ferguson.

Mr. Watt, the inventor of the Steam Engine, was a native of Greenock, and at 30 years old was employed as a mathematical instrument maker. By his subsequent exertions that powerful instrument the steam-engine had been brought to such perfection, as to be applied to most of the purposes of useful life, and to render cheap and accessible the materials of wealth and prosperity. And this great man had reaped the full reward of his genius and perseverance in the acquisition of an ample fortune, and in securing the esteem and respect of all ranks and classes of the community. Mr. Rennie, who was but a few days ago lost to the world, had risen also from a humble sphere of life to the highest eminence in his profession. Mr. Horner here read an extract from a book published in 1779, by a Mr. David Loch, in which, describing a visit he paid a school at Dunbar, he notices the examination of the mathematical class, and the amazing genius displayed by Mr. Rennie, then a young man following the business of a millwright; and who he describes as a second Newton, for whom no problem either in natural or experimental philosophy was too hard; and prophesies that he would, at no distant period, prove a great honour to his country. Mr. Horner appealed to the subsequent history of Mr. Rennie, to prove this prophecy had been amply fulfilled. After prosecuting the business of a millwright for a short time in Scotland, Mr. Rennie had gone to London, and followed the profession of a Civil Engineer, in which he soon rose to the highest rank, and enjoyed the esteem and society of all eminent men. Scarcely any great public work had been undertaken for many years in which Mr. Rennie was not the engineer; and among his last undertakings, the Waterloo Bridge at London had been spoken of by the celebrated Canova as the finest work in Europe. The celebrated Astronomer James Ferguson, was also an other remarkable instance where the cultivation of the natural genius had raised its possessor from a humble origin to the highest distinction. Mr. Ferguson was originally a shepherd boy and his education had been scanty indeed; only three months attendance at the grammar school of Keith; but the natural force of his genius overcome all obstacles. It had long been a prevalent error, continued Mr. Horner, that the speculations of the Philosopher had little to do with the business of life; but this narrow prejudice had now given way to sounder opinions. It was to the speculations of the retired philosophers that we were indebted for the Steam Engine——for the lighting of our streets with Gass—for the discovery of the Safety Lamp, which had been the means of saving so many valuable lives. These discoveries were in no degree the effect of chance, but the result of patient and enlightened research. It was by the labours of the mathematician and astronomer, and by the discovery of the compass, the telescope, and the chronometer, that navigation had been brought to its present perfection—from the humble Indian canoe, to that stupendous machine, a ship of war—and by which man was enabled to circumnavigate the globe. The recent application of steam to navigation was one of the greatest triumphs of mechanical art.—There was scarcely a branch of science which did not bear directly on the business of life; and it was the object of the founders of this institution to put the artisan in possession of the principles on which his daily occupation was founded.

From the N. H. Patriot.

ON THE CULTIVATION OF CARROTS.

Carrots are an article that merit the attention of the farmer. They will not grow in land that is very wet—moist land will answer, dry land is better——but they flourish best where the soil is composed of loam and sand. If they are sown on flat land, furrows running parallel with the row should be ploughed of some depth within ten feet of each other, to drain off the redundant moisture. The soil should be at least a foot deep and well pulverized.

They should be sowed on land that has been planted the two preceding years, the first year with Indian corn, and the second with potatoes. In those years the ground should be ploughed several times, and the second year ploughed deep; and so much manure should be put on to the land as will supersede the necessity of using any in the year in which the carrots are sown. Fresh manure has a tendency to produce rotten scabs on the carrots, and increase the number and growth of weeds, which are injurious to the crop. In the autumn and spring before the carrots are sown, the land should be ploughed well and deep at least three times. The last ploughing should be late in the spring, and just before sowing the seed the ground should be well harrowed.

The seed should not be sowed until the middle of May. If you sow it on ridges, as is best, they may be made with little labour with a horse-plough: and the top of each ridge should be levelled with a rake. The rows ought to be at the least two feet apart, and the seed three inches distant from each other in the row. There is perhaps, no error more common in the cultivation of the carrot, than that of sowing too much seed and suffering too many plants to grow. It is not the number but the *size* of carrots that makes a large crop. If they are sown thick and the plants suffered to stand, they will necessarily be small, and of an inferior quality.

If the seed is sown, as it ought to be, im-

mediately after the ground is ridged and raked, the carrots will come up as soon as the line of the plants can be discovered, the sides of the ridges should be hoed, whether weeds appear or not; and if there be any weeds on the top of the ridges they should be removed. Three men, in one day, will perform this operation on an acre of ground; but if neglected beyond the proper time it will require three times that labour. As soon as this is done a small double mould board plough should be run between the rows. In fifteen or twenty days they should be wed a second time; the plants and weeds will by that time have acquired considerable strength and size. A single mould board plough should then be run on each side of the rows as near to the carrots as may be without injuring them, and the useless plants, if any, should be destroyed. After the weeding is done a double mould board plough should be run between the rows so as to turn a portion of the earth around the plants, as well as to break the soil and more effectually destroy the weeds. The labour of this second weeding will be equal to the work of seven days of one man. If the ground was properly prepared, and the two weedings seasonably and faithfully performed, little more labour will be necessary to raise the crop.—Though I think, that in general, a third weeding, similar to the second, would so far increase the crop as would more than repay the labour. But if the third operation is not repeated, and weeds spring up in considerable number and size, they must be pulled up.

When the carrots are ready to be gathered, a plough should be run close to the plants, so as to turn the earth from them, and they may then be easily pulled up and thrown into a cart to be topped and housed. "Carrots," says the Massachusetts Agricultural Repository, "are easily kept in masses, in a cellar or place out of reach of frost, provided they be *dry* when put into it. But if *wet*, they will be in great danger of heating and decaying. To prevent this, they ought to be taken out of the ground in dry weather. If possible, after they are topped they should be permitted to be in heaps, under cover, for a week or ten days. This precaution is particularly requisite, when the quantity raised is great. With it, fifteen hundred or two thousand bushels may be safely deposited in bulk. Without it, a much smaller number will be likely to be injured." And permit me to repeat, what I have on a former occasion intimated, that to those who raise large quantities of roots for cattle a cellar under the barn is not only convenient but necessary. In it that portion of potatoes, carrots and turnips that are destined for cattle should be deposited.

In Massachusetts, were considerable attention has been devoted to the culture of the carrot, the fact is established by irresistible evidence, that *twenty-three tons of carrots has been raised in one crop from a single acre of land.* "Every thing else being equal," says one of their writers, "we consider that bushel for bushel, the carrot is superior as a winter food for cattle to the potatoe. According to our experience, a greater quantity of either carrots, or turnips, than of potatoes, may be raised on the same ground, for equal labour. That is to say, four or five hundred bushels of either may be raised with an expense of labour and land, which would not raise two hundred bushels of potatoes. This depends, however, upon the manner, in which those crops are managed. Both may be made costly crops unlss the mode of field management be well understood; and when this is the case, they can scarcely fail to be profitable."

If we can raise ten, or even six tons of carrots at one crop from an acre, it will afford much aid in raising and supporting our stock—it will be an additional source of profit to us. I do not wish to recommend the culture of carrots to the exclusion of potatoes; both should be raised for both are necessary to enable the farmer to obtain the greatest profit that his stock is capable of yielding. The extent to which either should be carried, depends upon the nature of our land, the means we possess, and the mode we adopt to cultivate it.

That the farmers in New-Hampshire need some other provision besides hay, for the support of their flocks and herds during the cold season, is a fact that cannot be denied by any one; and least of all by those who look forward to such improvements in agriculture as will enhance its profits. Nor can the fact be denied that carrots afford a wholesome succulent winter food for cattle.

"At Parlington in Yorkshire," (Eng.) says the Encyclopedia, "from the end of September to the first of May, twenty work horses, four bullocks, and six milk cows, were fed on the carrots that grew on three acres; and these animals never tasted any other food but a little hay. The milk was excellent: and, over and above, thirty hogs were fattened upon what was left by the other beasts. We have this fact upon undoubted authority."

CINCINNATUS.

March, 20, 1822.

FOR THE PLOUGH BOY.

Veterinary Medicine.—No. XXI.

RINGBONE.*

Ringbone is a large swelling on the lower part of the pastern, which generally reaches half way round the fore part, and, from its resemblance to a ring, has this denomination. A ringbone has an affinity to a bone spavin; and, for the most part, proceeds from the same cause. The external cause of a ringbone is often a strain in the pastern, from hard riding on dry roads; or owing to the pastern having been wrung in deep clayey roads, either in travelling or at grass. These often produce ring bones. Yet some horses, are naturally subject to ring bones, especially those that are large and bony about the pasterns. When a ringbone appears upon a clean limbed horse, it is seldom so dangerous as when it happens to horses that have large bones, and are fleshy in those parts for when the swelling is removed, the stiffness often remains.

A ringbone is always easier to cure when it appears distinct round the pastern, than when it spreads downward towards the coronet; for then it is apt to affect the coffin joint, if it does not derive its origin from some strain or defect in that joint originally; in which case the cure will be uncertain, and sometimes impracticable, when a callosity is produced under the round ligament that covers that joint, and even when it happens more externally; it proves also dangerous, when it unites with or spreads the ligamentous substance that joins the hoof to the flesh; it is apt to turn to a guittor, and in the end to form an ulcer under the hoof. A ring bone that rises on the pastern is easily cured when it does not run towards the coronet.

Gibson says, the ringbones that appear on colts and young horses will often insensibly wear off themselves, without the help of any application; but when the substance remains, there needs no other remedy besides blistering, unless when, by long continuance, it is grown to an obstinate hardness, and then it may require both blistering and firing. The swelling may proceed only from the tendons, which sometimes is not easy to be distinguished from a true ringbone, except only, that a true ringbone is less painful, unless it proceed from tbe coffin joint. In this case, blistering alone generally proves successful; and it is to be renewed two or three times, according to the urgency of the symptoms. But in a true ringbone, where the substance is hard, like a piece of flint, and altogether insensible, and without pain, firing is the only thing to remove it.

Gibson, in order to fire a ringbone successfully, advises the operation to be performed with a thinner instrument than the common one; and that the lines or razes, be made not above a quarter of an inch distant, crossing them obliquely somewhat like a chain. He directs us to apply a mild blister over all, and when quite dried up, and before the hair is grown, to lay on a charge of yellow rosin and bees wax, &c. melted together, and spread over the pastern joint, covering the whole with flocks or with the stuffings of an old saddle. As soon as the horse has rested two or three days in the house, he advises us to turn him out to grass, in some dry, smooth pasture. The same method, he says, is to be followed when the ringbone rises towards the coronet, or the coffin joint.

* Boardman's Veterinary Dictionary.

TO THE PATRONS OF THE PLOUGH BOY.

Whilst the Editor held the Post-Office, his official duties prevented him from attending in person to the pecuniary concerns of this establishment. The consequence is, that the accounts have not been kept accurately; that in many cases payment has neither been made, nor demanded; in many others, it has been made, either voluntarily, or on demand, but no credit given in the books; these, therefore, are found to be in a deranged state, or rather a state of uncertainty, since the Editor frankly confesses, that he cannot determine from them what is, or what is not, due to him from his patrons, individually or collectively.

He, therefore, takes the liberty of calling, through the medium of this notice, upon each one of his subscribers to inform him, by mail, what amount he will owe up to the first of June next, when the 4th volume commences —how much of that amount he has paid— whose receipt, if any, he has for it—and to inclose at the same time the balance that may remain due.

The Editor hopes, that there may not be one among his patrons, who will neglect to attend to this request. He is anxious to keep up this work, as well for his own as the public good; but this cannot be done without he receives all that may be due to him at the close of the present volume—the last number of which will be published on Saturday the 25th of May. A prompt compliance with this notice, therefore, is indispensable not only to the correct arrangement of the books, but to the preservation of the Institution itself.

Hitherto the Editor has entertained hopes, founded on the acknowledged utility of this paper, that it would be patronized by a legislative act. A bill for that purpose passed both houses of the Legislature of 1821—but did not reach the council of Revision in time to become a law. His Petition for public patronage, sanctioned by the signatures of from FIVE to TEN THOUSAND enlightened and independent Farmers, was renewed at the commencement of the present Session. But it has not been thought proper even to give it a hearing, notwithstanding the voice of the numerous petitioners, and the intrinsic merits of the application. This may be legislation —but it is not such legislation as a free people have a right to expect. It may suit the atmosphere of Turkish despotism, where petitions and petitioners are alike treated with contempt, and the latter frequently consigned to the bow-string of the mute, or the sword of the Jannisary, unless the Grand Turk happens to be in a good humour, when his humble vassals approach his sacred and majestic presence. But it does not comport with the principles of a free government—it is not congenial with the spirit of 1776—that the Legislators of New-York, the *servants* and not the *masters* of the people, should treat their constituents, who come before them with petitions, as the *Grand Turk* treats his ignorant, abject and submissive slaves!

But let us not be misunderstood. We do not blame our representatives for refusing to grant The Plough Boy Petition. But we blame them for neglecting entirely to canvass its merits—for not giving it a fair hearing —an impartial investigation—and such a decision thereupon, as might have comported with their honest views of the subject. We blame them for treating with silent contempt and neglect, the Petition of Thousands of their constituents, voluntarily preferred, clothed in respectful language, and bottomed on arguments, possessed of no small share of solidity, if not absolutely conclusive.

While we owe no thanks to our own government for encouraging this enterprise— this first attempt on the part of the press in this state, to promote the cause of Agriculture— while scarcely any of those upon whom the people have bestowed their honours, have stepped forward to cheer the labours of the Editor; the countenance and patronage of the BRITISH GOVERNOR-GENERAL OF THE CANADAS, THE EARL OF DALHOUSIE, has done more to support THE PLOUGH BOY, than all the subscriptions of all the DIGNITARIES of our State and federal governments put together! Yes, the value of this paper, in diffusing agricultural information, is duly appreciated by the *Royal Governor* of Canada, while *Republican* Legislators do not deign even to enquire into its utility, although THOUSANDS of their constituents have petitioned them to extend to it the public patronage. From the *Earl of Dalhousie*, we have received the most friendly and affectionate letters, with substantial enclosures, for our present and past volumes; we have also received numerous subscriptions from Quebec and Montreal, through his influence; and we take this public method to return him thanks, not only on our own account, but on account of those enlightened farmers of New-York and the United States, who deem The Plough Boy a useful auxiliary in their rural labours. But thus far we have looked in vain, with one or two solitary and honorable exceptions, to the high places of our native land, for even a cold subscription, much less a friendly or affectionate expression of good will to the enterprise!

Still, under all these discouraging circumstances, we have determined to strip up our sleeves (having at present no official duties to perform) and endeavour, by dint of our own mechanical as well as editorial labour, to keep up THE PLOUGH BOY. To enable us to do this, however, it is indispensable, that our books be balanced by the first of June; and if, in addition to the payment of arrearages, each of our present subscribers would exert himself effectually to add one of his neighbours to our list, this step would ensure the permanency of the Institution, and afford us something like remuneration for our labour. We might then go on rejoicing in our humble path, though neglected, and even *bitterly* and *malignantly* opposed, as we have been in some instances, by certain *great*, and *good*, and *illustrious*, and *exalted Patriots* and *Politicians*, *Philosophers* and *Statesmen*, who, if they do not in all cases absolutely guide, too frequently exercise an inglorious influence upon, the destinies of the republic.

We cannot conclude, without the heart felt expression of our gratitude, not only to our subscribers in Canada; but to those of our fellow-countrymen, and among them we count many professional gentlemen, as well as farmers, whose public spirit has induced them to patronize this work. We shall endeavour to make it worthy of their future support; and we do not despair of seeing it triumph at last over every obstacle.

S. SOUTHWICK.

ALBANY, *April 16th*, 1822.

P. S. It is hoped that every subscriber in arrear will not only pay up; but also give timely notice whether he means to continue his subscription for another year. To this point very particular attention is requested; because, if we send our first number, and perhaps the second and third, of the fourth volume, and then have a notice to stop, it puts us to the expense of printing those numbers over again, to make good our files, and preserve our volumes entire.

☞ Brother Editors, of all parties, will confer a favour on S. S. by giving place to the above Address.

From the American Farmer.

PEACH TREES.

Make boxes around your trees about one foot in height, and in capacity, exclusive of the tree, to hold a peck, fill this in with the bark taken from tan vats, pressing it a little together, and your trees will remain free from worms around the roots, which are so destructive to trees; as it is found that worms will not inhabit this bark if ever so old.

FOR SALE,

HAMPTON ARABIAN.

A FIRST rate STUD HORSE, four years old the 15th June last—fifteen and a half hands high—dapple grey—a cross of the first blood English Arabian, and Narragansett breed of horses, and exhibits as much activity, and elegant symmetry of form, as any horse of his age.—If not sold by the 15th April, will be let for the season.

JOHN WATSON, jun.

EAST WINDSOR, Con. March 30th, 1822.

☞ COMMUNICATIONS and SUBSCRIPTIONS for this paper, received at the PRINTING-OFFICE, No. 5, Lutheran-street. All letters from abroad, directed to the EDITOR, Albany, will be duly attended to. Each volume comprises twelve months, or fifty-two numbers—the numbers are issued weekly on Saturday, and the volume commences the first Saturday in June.

TERMS.—THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.